MARPLOT™

MAPPING APPLICATION FOR RESPONSE,

Student Workbook

PLANNING, AND LOCAL OPERATIONAL TASKS

1999

U.S. Environmental Protection Agency

National Oceanic and Atmospheric Adminstration

COMPUTER-AIDED MANAGEMENT OF EMERGENCY OPERATIONS
cameo®

Chemical Emergency Preparedness and Prevention Office
Washington, D.C. 20460

Hazardous Materials Response and Assessment Division
Seattle, Washington 98115

Table of Contents

Introduction

MARPLOT® (Mapping Application for Response, Planning, and Local Operational Tasks) is a general-purpose mapping application program that allows you to create, view, and modify maps quickly and easily. It also allows you to link objects on your computer maps to data in other programs.

The MARPLOT training course is designed to provide you with an understanding of the capabilities of MARPLOT, as well as the relationships between MARPLOT and CAMEO®, MARPLOT and ALOHA®, and MARPLOT and LandView™. MARPLOT can share information with other application database programs that store information about MARPLOT objects.

This student manual is designed to provide you with a quick reference guide to answer some basic questions you might have as you complete this training course. Use this manual to record any questions you may need to ask your instructor during the training course. Also, use this manual to keep track of any information you may want to access quickly. You should have also received the *MARPLOT User's Manual*; additional information may be found in this source if you have any additional questions as you work with MARPLOT on your own.

Data
Map data for MARPLOT come from a variety of sources. All of the TIGER/Line© data from the Bureau of Census (roads, water bodies, railroads, parks, etc.) are available in MARPLOT format on a set of LandView CDs. These CDs also contain data for many EPA-regulated sites, demographic data, and several types of geographic boundaries such as states, counties, cities, congressional districts, etc. Map data for specific counties can be obtained on the Internet from RTKNet.

System Requirements
For a Windows®-based system MARPLOT requires Windows 3.1 or later. When used with Windows 3.1, it requires the Win 32s system extension, which is included with MARPLOT and is installed as part of the standard installation procedure. For a Macintosh system, MARPLOT requires System 7.0 or later.

MARPLOT uses about 1.5 megabytes (MB) of internal memory (RAM) for itself, but will take advantage of more memory if it is available. The program and associated files will take about 1.5 MB on disk, not including the map files. The amount of disk space required for maps varies according to the number and size of maps you use. The maps for United States counties may each require 0.5 MB to 20 MB of disk space, depending on the amount of data associated with the county. A typical county takes from 5 to 10 MB; as you might expect, larger counties tend to take up more disk space, as do highly developed counties with a great deal of associated data such as roads, objects, etc.

Limitation of Liability

The United States government has used its best efforts to deliver complete data incorporated into MARPLOT and its associated map files. The United States government cannot be held responsible for errors or omissions and is not liable for any direct, indirect, or consequential damages resulting from the use of MARPLOT.

Quick Reference

Tools:
The following tools will always appear along the left side of your map:

Arrow — Select objects

Hand — Drag the current map

Distance — Measures distance

Zoom-in — Zooms in on the current view by a factor of 2

Zoom-out — Zooms out from the current view by a factor of 2

The following tools will appear along the left side of your map when you have one or more layers unlocked:

Symbol Create symbol (also called “point”) objects

Rectangle Create rectangle objects

Circle Create circle objects

Polyline Create polyline objects (strings of connected line segments used to represent things such as roads or rivers)

Polygon Create polygon objects (multi-sided, closed figures)

Text Create text objects to label your maps

Menu Items:
The following list contains the menu items available to you when you are working with MARPLOT. Some of these options may not be available to you at all times. If a menu item is not available, it will be grayed out. MARPLOT provides the user with condensed menu list available by clicking on the black arrows in the status bars at the top and bottom of the map window. The menu items contained in these lists are provided at the end of this section.

File menu

Save as Picture
Print Setup….
Print….
Import….
Export
Compact Map Files
Preferences….
Administrator….
Exit

Edit menu

Undo
Cut
Copy
Paste
Clear
Insert Picture Object….
Make New Polygon….
Make New Polyline….
Polyline <-> Polygon

View menu

Go to View….
Go to Previous View
Set Scale….
Go to Lat/Long….
Save Current View….
Edit Views….
Entry View….
Reference View
- Set….
- Show

Legend
- Settings….
- Show

Scale Bar
- Settings….
- Show

Time Stamp
- Settings….
- Show

Lat/Long Grid
- Settings….
- Show

Marked Point
- Mark Focus Point
- Center on Marked Point
- Distance to Marked Point
- Rescale to Marked & Focus Pts
- Clear Marked Point

Redraw

List menu

Search
Show Search collection
Copy to Search Collection
Layer List….
Map List….

Objects menu

Object Settings….
Segment Settings….
Vertex Menu
- Mark Vertex
- Move Vertex to Marked Point
- Insert Vertex at Focus Point
- Delete Vertex

Move Objects to Layer….
Move Objects to Map….
Color
Line Style
Fill Pattern
Symbol

Sharing menu

About Sharing….
ALOHA
- Help
- Set Source Point
- Set Conc\Dose Point
- Delete ALOHA Objects
- Go to ALOHA

CAMEO
- Get Info
- Link Object
- Unlink Object(s)
- Go to CAMEO

Help menu

Contents
Search for Help On...
How to Use Help
About MARPLOT

The following menu options are available by clicking on the small black arrows located in the status bars at the top and bottom of the map window:

Copy Coordinates
Coordinate Format….
Center on Focus Point
Go to Lat/Long
Mark Vertex
Move Vertex to Marked Point
Insert Vertex at Focus Point
Delete Vertex

Copy Scale
Scale Format….
Zoom In
Zoom Out
Set Scale

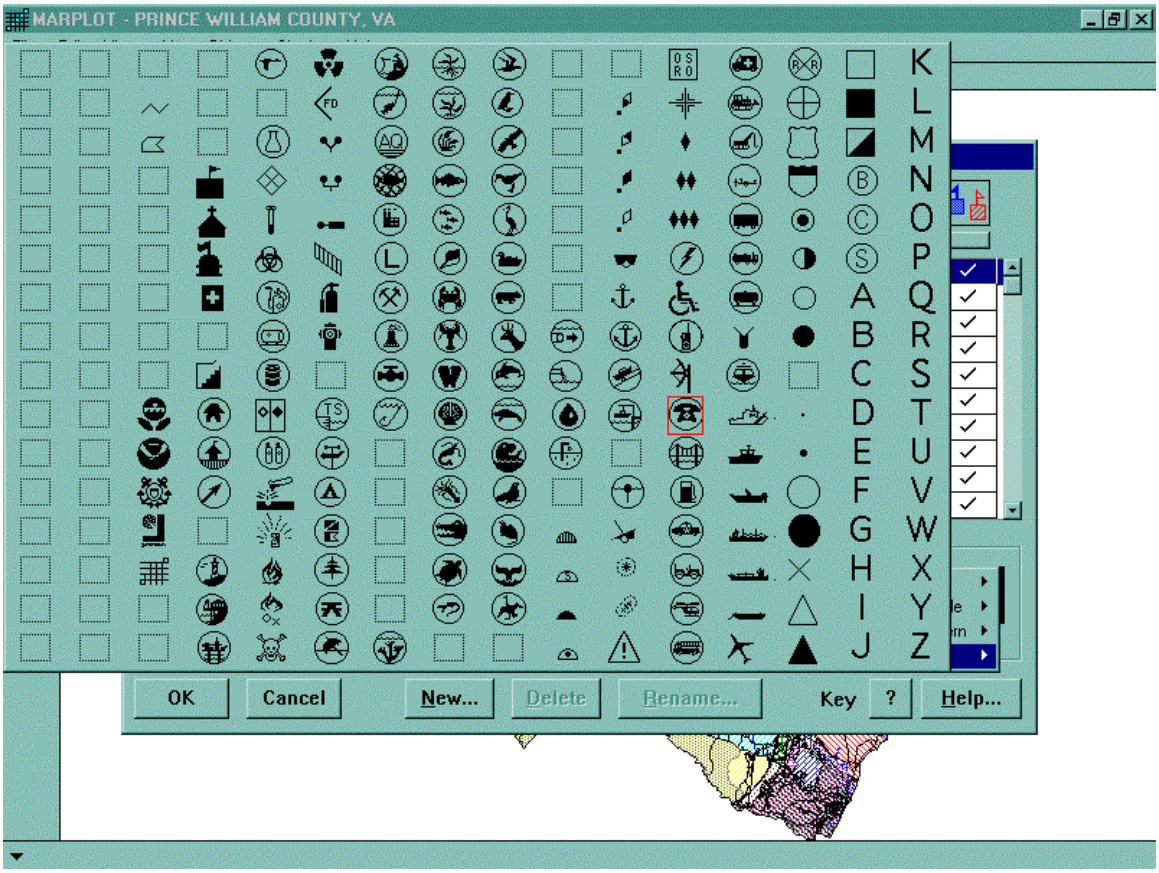
Copy Name
Reference View
Legend
Scale Bar
Time Stamp

Object Settings….
Segment Settings…
Copy Object Record
Copy Object Coordinates
Copy Text

Symbols:
The MARPLOT Font has many symbols for objects that are placed on the map. Categories include:

- Places
- Chemistry
- Fire Department
- Monitoring Stations
- Recreational Sites
- Industry
- Sensitive Biological Resources
- Water/Marine
- Communications
- Transportation, Services, and Vehicles
- ICS Facilities
- CAMEO Symbols
- Miscellaneous Items
- Logos
- Shapes
- Alphabet.

The following screen shows the array of MARPLOT Font symbols.



Definition of Terms

Administrator MARPLOT can run in either "single-user" or "multi-user" mode. In multi-user mode, one person is designated as the administrator. The administrator controls access to the system by assigning each user a password.

Focus Point The small, flashing, target-shaped icon that marks the location of the most recent point of interest on the map. Every time you click on the map with the arrow tool, the Focus Point moves to the location of your click. The Focus Point also changes in response to other operations, such as when you show an object from the Search Collection on the map. The latitude/longitude coordinates of the Focus Point are shown in the upper-left corner of the map window.

Layer A category of objects. Objects are organized into layers so that you can operate on only certain objects at a given time. For instance, you might want to search for an object named "Walden Pond" only on your "Water" layer. Or you might want to hide your "Roads" layer at a scale when the number of roads becomes so great that drawing the map takes too long.

A given layer can contain objects of different types. For instance, you might have both point and polygon objects on a "Facilities" layer. The layers are drawn in a certain order, allowing you to put certain layers "above" others on the map. You can use the Layer List dialog box to examine and modify the settings of your layers.

Map A map is a directory (folder) on your disk that contains the objects for a certain geographical area. A map folder is often located in the same folder as the MARPLOT application program, but can be located anywhere on any of your disk drives. Often, a map covers the area of a single county, but maps can be much smaller or much larger than that. You can have any number of maps. It is common for the geographical areas covered by two different maps to overlap. If you use MARPLOT to view an area that intersects with more than one map (for instance, an area that covers more than one county), all maps in the displayed area are drawn simultaneously on the screen.

All of the maps that MARPLOT is aware of are always "present," and there is no need to "close" one map before opening another to view it. However, it is possible to put a map "out of use" so that it is not drawn on the screen. Use the Map List dialog box to examine the list of maps.

A map directory (folder) contains a number of layer files, each of which contains the objects for the given layer on the given map.

Marked Point The pink, target-shaped icon that marks a location of interest to you. You can set and use the Marked Point with the Marked Point submenu in the View menu, or the Vertex submenu in the Objects menu.

Object An entity on a map. MARPLOT maps are composed entirely of collections of objects. A typical map contains thousands of objects, distributed among several layers.

There are seven types of objects: **point** (**symbol**) objects mark the location of a point with a symbol or dot; **rectangle** objects and **circle** objects mark rectangular and circular areas, respectively; **polyline** objects, which are sequences of connected line segments, represent features such as roads and rivers; **polygon** objects represent bounded features such as water bodies and parks; **text** label objects are used to label maps with text; and **picture** objects are like rectangle objects that are filled not with a simple pattern but with the contents of a picture image.

An object is always on a certain layer and is associated with a certain map. Objects may be moved to other layers and maps. Each object has a number of attributes that you can examine and change, such as its name, its color, etc. Some attributes, such as "fill pattern," are only present in certain types of objects.

Scale The ratio of the size of a map to the size of the area it represents. For example, a scale of 1 : 50000 means one inch on the map is equal to 50,000 inches in the real world. MARPLOT can also display scales in terms of units (e.g., "1 inch = 3.25 miles") or in terms of the distance represented by the width and height of the map window.

Note on scale terminology: as you zoom into the map, the scale becomes *larger*. As you zoom out, the scale becomes *smaller*.

Search Collection The list of objects resulting from the most recent search operation, or from copying a group of selected objects to the Search Collection, under the List menu.

Segment Polyline and polygon objects are composed of connected line segments. Each segment can have a number of attributes, such as the range of addresses contained in a certain segment of a road. When a polyline or polygon object is selected, MARPLOT draws a red dot at each of its vertices. This makes it possible for you to see how the object is broken into segments. If the Focus Point lies along one of the object's segments, you can use the Segment Settings menu item in the Objects menu to see the attributes of that segment. Similarly, when you find an address range from the Search Collection dialog box, and show it on the map, MARPLOT indicates the found segment by centering the Focus Point along it.

In objects derived from TIGER/Line data, some segments are called "shape" segments. This means that the segment "inherits" its attribute settings from a neighboring segment.

Sharing The process by which MARPLOT communicates with other applications. Usually these applications are databases that store information about MARPLOT objects.

User's Map In both a single and multi-user system, each MARPLOT user has a private map which he or she can alter by performing any sort of scratch work, such as creating and editing MARPLOT objects. In a single-user system, the user's map is simply named "User's Map." In a multi-user system, each user has his or her own user's map, with names such as "John's Map" and "Mary's Map."

Vertex One of the points defining the shape of a polyline or polygon object. Each vertex of a polyline or polygon is highlighted with a red dot when the object is selected.

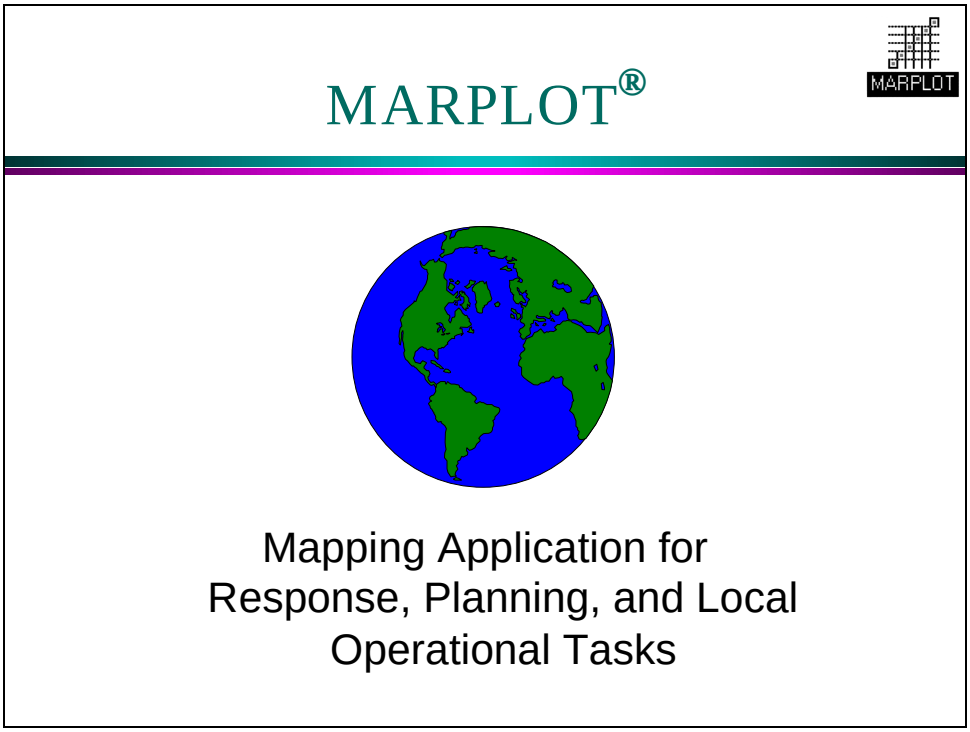
View The area of the world that is displayed in the map window. You can change the view by using one of MARPLOT's several navigation tools. You can save a view to be returned to at a later time by giving it a name. You can pick a view to be the "entry view," which MARPLOT will go to automatically when it is started. You can also pick a view to be a "reference view," which is displayed in the upper-right corner of the map window and shows the current view in reference to a larger area.

Course Materials

Day One

8:30 - 9: 00 am MARPLOT Introduction and MARPLOT Development

- Who developed MARPLOT and the CAMEO suite of applications
- Why
- Relationship between MARPLOT and CAMEO, ALOHA and MARPLOT, and MARPLOT and LandView
  - In development
  - In sharing data and compatibilities



Course Overview

- Day One
  - » Introduction to MARPLOT®
  - » Concepts
  - » Functions
  - » Examples
  - » Hands-on Exercises
- Day Two
  - » More Advanced MARPLOT Skills
  - » Additional Examples and Exercises
  - » Interaction with Other CAMEO® Programs

MARPLOT Introduction

What is MARPLOT?

- General-purpose mapping application program
- Used for creating, viewing, and modifying maps
- Links objects to data in other programs
- Used with CAMEO or LandView™ applications
- Contains information that can be shown on a map

What are CAMEO and LandView?

- CAMEO is computer software for chemical emergency planners and responders
- LandView is an innovative “community right-to-know” software tool in the format of an electronic atlas.

Who developed MARPLOT?

- Developed by:
  - EPA's Chemical Emergency Preparedness and Prevention Office
  - NOAA's Hazardous Materials Response and Assessment Division
- In collaboration with
  - U.S. Department of Commerce's Bureau of the Census
  - U.S. Coast Guard

Relationship to CAMEO

- MARPLOT is part of CAMEO's suite of three separate, integrated software applications
  - » MARPLOT
    - – Mapping application
  - » CAMEO
    - – Chemical database
    - – Information modules
  - » ALOHA
    - – Air dispersion modeling

History of MARPLOT

- CAMEO DOS with MARPLOT in 1991
- Enhanced MARPLOT included with LandView in 1992
- MARPLOT for Macintosh in 1993
- MARPLOT for Windows in 1995

Relationship to LandView

- LandView software package combines:
  - » LandView database management system, and
  - » MARPLOT mapping application

Objectives

- Become familiar with basic MARPLOT functions
- Use MARPLOT to view particular maps, layers, and objects
- Edit objects on MARPLOT maps
- Use MARPLOT's Sharing menu with ALOHA® and CAMEO

Definition of Objects

- Objects
  - » Make up the content of MARPLOT maps
  - » Seven types of objects

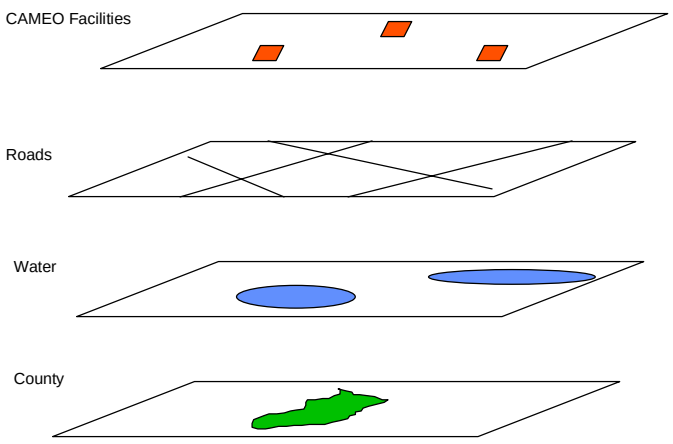
Seven Types of Objects

- Points
  - Symbols
- Rectangles
- Circles
- Polygons
  - Parks
  - Water Bodies
- Polylines
  - Roads
  - Streams
- Text Labels
- Pictures
  - Images

Definition of Layers

- Layers:
  - Contain specific types of objects (roads, water bodies, hospitals, etc.)
  - Multiple layers can be visible at once

Example of Layers



Definition of Maps

- Maps:
  - » Cover a specific geographic area
  - » Contain some number of layers
    - – Layers can span multiple maps
- Multiple maps can be open at once
- Multiple maps can be displayed at once

NOTES

9:00 - 10:00 am Demonstration of MARPLOT Functions (Hands-on)

- File Menu
- Map List
  - How maps are organized
  - Sorting maps
- Layer List
  - Drawing order
  - Layer order or alphabetical
  - Locking, show/hide, scale ranges, common/individual graphics
  - TIGER layers, LandView "States" layers, CAMEO layers
  - MARPLOT maps, layers, and object scheme
  - Drawing and redrawing (draw incomplete)
- Navigation and Views in More Detail
  - Tools along left edge of map window (e.g., distance tool)
  - Go to View
  - Define reference view

NOTES

NOTES

10:00 - 10:15 am Break

10:15 - 11:00 am Demonstration and Hands-on Exercises - Search Functions

- Search
  - Layers/Object
  - Name vs, Location
  - Intersections
  - Addresses
  - Find cities and roads
  - Search collection and subsets thereof

NOTES

NOTES

11:00 - 11:45 am Hands-on Exercises

- Practice moving around the screen, using tools and the file menu
- Answer questions from Problem Set I (1-3)

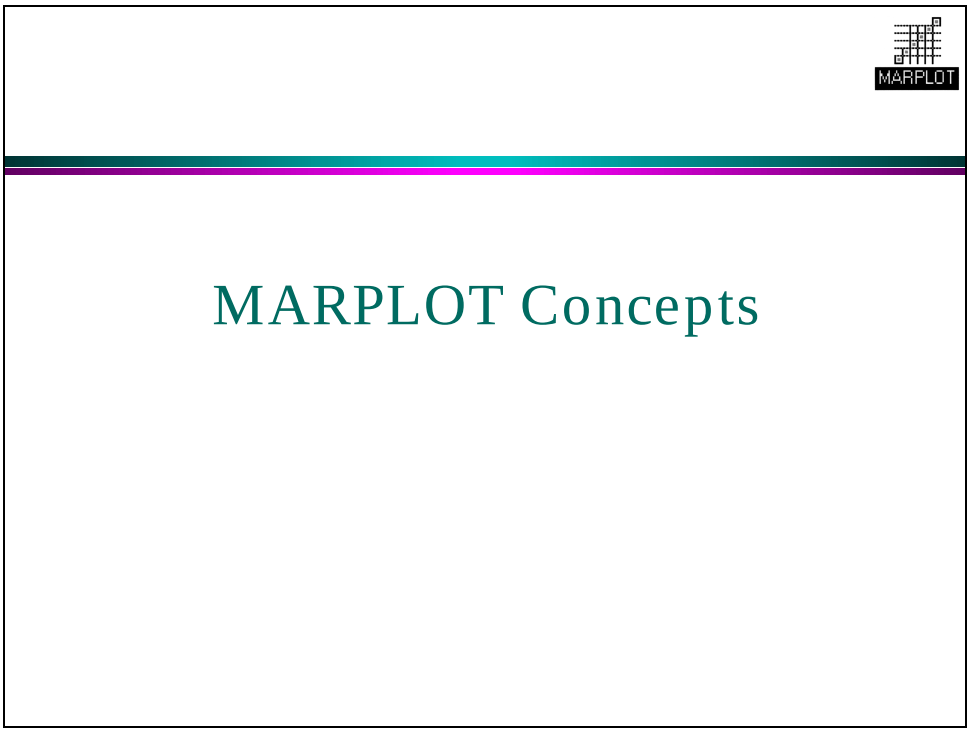
11:45 - 1:00 pm Lunch

NOTES

NOTES

1:00 - 1:15 pm MARPLOT Concepts

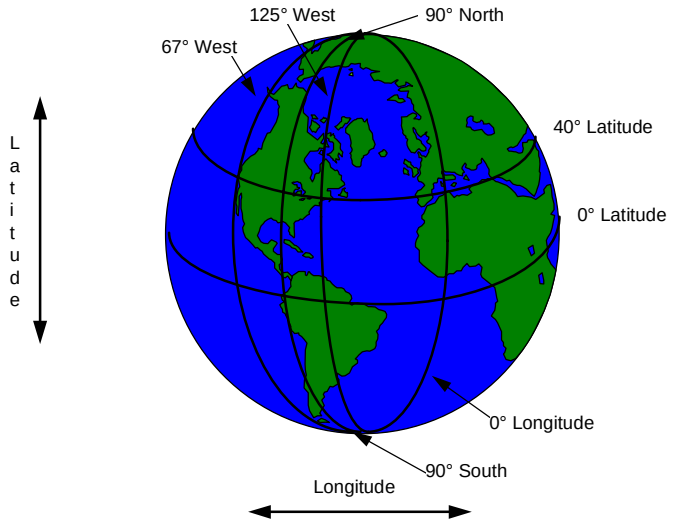
- Representation of latitude/longitude (3 options)
- Representation of scale (ratio, distance, window size)
- Viewing layers (setting ranges)



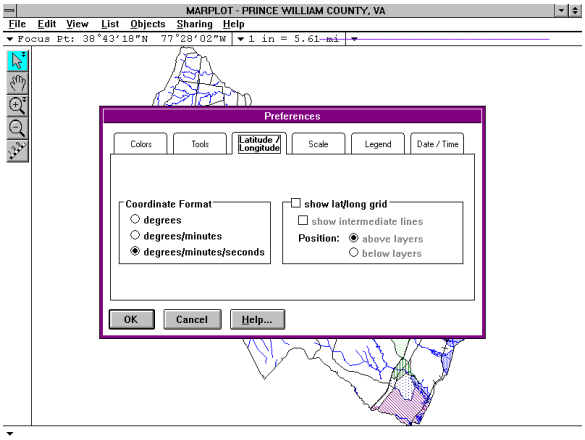
MARPLOT Display Options

- Representation of latitude/longitude
- Representation of scale

Example of Latitude and Longitude



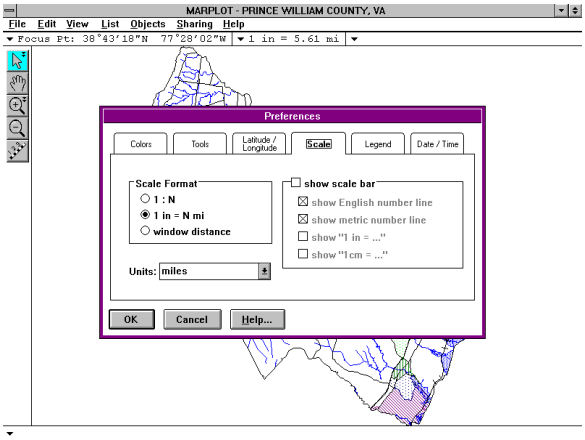
Latitude/Longitude Pop-up Box



Latitude/Longitude Options

- Three options:
  - » Degrees followed by a decimal degree fraction (e.g., 40.250000°)
  - » Degrees – minute pair (e.g., 40°25.10')
  - » Triplet of degrees, minutes, and seconds (e.g., 40°25'00'')
- Note: The first value is not the same as the second two!
  - » 40.250000° = 40 ¼° = 40° 15'
  - » 40° 25' ≈ 40° ½°
  - » 40° 25.00' = 40° and 25.00'

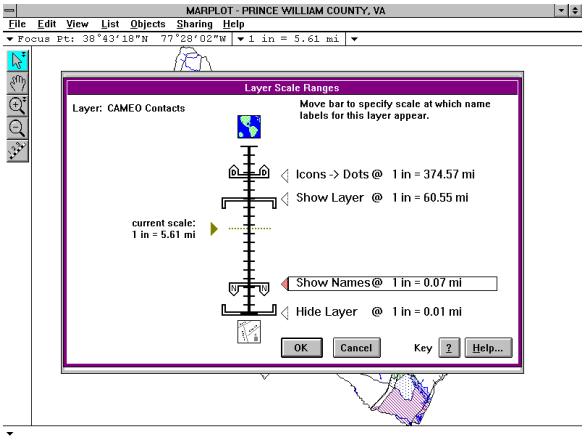
Scale Pop-up Box



Scale

- Three options:
  - » Ratio
    - – 1:N (e.g., 1:50,000)
  - » Distance
    - – 1 in = N mi (e.g., 1 in = 10 mi)
  - » Window dimensions
    - – Window distance (e.g., 5 mi x 3 mi)

Layer Scale Ranges



Viewing Layers

- Setting scale ranges
  - » Four scale values:
    - – Show Layer
    - – Hide Layer
    - – Show Names
    - – Icons -> Dots
  - » Presents a scale “ruler”
    - – Ranges from the largest scale to the smallest scale

NOTES

1:15 - 2:00 pm MARPLOT Functions Cont'd (Hands-on)

- Preferences
- Views
  - Saving
  - Returning
  - Using a reference view
- Output
  - Print
  - Save as picture
  - Copy
- Identifying objects, editing text

2:00 - 2:15 pm Break

NOTES

NOTES

2:15 - 3:15 pm Examples (Hands-on)

- Adding Maps
- Searching and the Search Collection
- Adding and Modifying Objects
  - Layer locking
  - Changing fill patterns
  - Creating point objects

NOTES

NOTES

3:15 - 4:00 pm Hands-on Exercises

- Answer questions from Problem Set II (1 - 9)

4:00 - 4:15 pm Break

NOTES

NOTES

4:15 - 5:00 pm Sharing Menu

- Linking with CAMEO
- Depending on audience, link with CAMEO to show scenario (demo)
- Linking with ALOHA
- Linking with LandView

NOTES

NOTES

Day Two

8:30 - 9:00 am Refresher

Instructors will, using the MARPLOT system to demonstrate, interact with class to provide a brief refresher covering the material taught during the previous day. Instructors will also allow time to answer any questions that the class may have.

NOTES

NOTES

9:00 - 9:45 am Examples Cont'd (Hands-on)

- Editing road segments
  - Adding streets
  - Extending streets and making intersections

9:45 - 10:00 am Break

NOTES

NOTES

10:00 - 10:45 am More Advanced MARPLOT Skills

- Insert Picture Object
- Other advanced MARPLOT skills (Reference Only)
  - Geo-referencing picture object
  - Transferring map data (copying maps in map files and using export and import)

NOTES

NOTES

10:45 - 11:45 am Exercises (Hands-on)

- Problem Set III (1 - 5)

NOTES

NOTES

11:45 am - 12:00 pm Q&A

A final opportunity will be given for the class to ask any questions either about the material that has been covered or about additional potential questions or problems that MARPLOT might be used to answer.

NOTES

Student Problem Sets

Problem Set I

1) Show the entire map of Prince William County in the map window. Show just the Places layer. Click on the colored polygons in the northern part of the county to find "Haymarket town" on the Places layer (you'll see its name at the bottom of the window when you click).

2) Show the Water layer of Prince William County. What is the name of the long thin bay near the southeastern edge of the county?

3) Experiment with draw times. How long does it take to draw Prince William County with all layers shown? How long does it take to draw just the roads layer? How long does it take to draw all layers except the roads layer?

Problem Set II

1) Put the Roads layer into Range mode. Using the Scale Ranges button, make it so the roads only show up when you have zoomed closer than "l inch = 0.5 mi" and the name labels of the roads only show up when you have zoomed in closer than "l inch = 0.2 mi." Use the zoom tools to confirm that these settings work.

2) Put the Places layer into Range mode. Using the Scale Ranges button, make it so the places only show up between the scales 1:30000 and 1:1000000 (you will not be able to get these values exactly; just get close). Use the zoom tools to confirm that these settings work.

3) How long is Lake Manassas east to west? About how much area does it cover, in square km?

4) Go to the "entire map" view for Prince William County. Find and zoom to Dale City using the Search dialog box.

5) Save a view of Dale City showing just the city, the surrounding towns, and the major roads. Use the view as reference view. Zoom in on Dale City so that you can see all of the roads, and confirm that the reference view shows where in the city you are. Double-click on the reference view to hop around in Dale City. Hide the reference view when you are done with it.

6) How many roads in Prince William County start with "R"? Of these, how many of them are courts (that is, have a name that ends with "Ct.")?

7) Natasha and Boris both live on Copeland Drive in Sudley. Natasha lives at 10432 Copeland Drive and Boris lives at 9654 Copeland Drive. About how far is it from Natasha's to Boris's if you take Copeland Drive all the way? Give directions from Natasha's to Boris's along the shortest route. About how far is it along that route?

8) Consider the North Branch Chopowamsic Creek. You'll notice that in fact a section of this creek has been misnamed North Branch Chop*a*wamsic Creek. Correct the name of this section.

9) By setting the background to black and the Water layer to solid white, create a view that shows the land around Lake Manassas in black.

Problem Set III

1) A patient needs to be transported by helicopter from Health Care Plus (located at 38°52'51"N, 77°39'57"W) to Central Hospital (located at 38°48'37"N, 77°32'58"W). About how long is the flight?

2) A patient needs to be driven from Health Care Plus to Central Hospital. What looks like the best route? About how long is the drive? (Is there a better way to do this than by using the distance tool?)

3) Place symbols on Lake Manassas to indicate the location of two good fishing spots, and two campsites on the shore. Export these four objects to a text file using the text format (not the MIE). Use a text editor to confirm that the objects were written to the file correctly.

4) In the empty space bordered by Mariner Lane and Harbor Drive, a new research center called the "Star Research Center" has just opened. Using the polygon tool, create a star-shaped polygon to represent the center. Place the object on a "facilities" layer.

5) A small bridge has been added over Lake Omisol connecting Cismont Ct. to Pmisol Road. Add this bridge as an object on the Roads layer of the Prince William County map. Make sure it intersects properly with the two roads. Check these intersections with the Search dialog box.

NOTES

Answers to Problem Sets

Answers to Problem Set I

1) N/A

Steps to follow:
a) From the List menu, select the Layer List option.
b) Click on the Hide button above the Layer List.
c) Click in the Places row in the show column, to show only this layer.
d) Click OK.

2) The name of the long, thin bay near the southeastern edge of the county is Belmont Bay.

Steps to follow:
a) From the List menu, select the Layer List option.
b) Click on the Hide button above the Layer List.
c) Click in the water row in the show column.
d) Click OK.
e) Click on map with the Arrow tool to identify objects. Click in the southeastern portion of the map, with the Arrow tool, to identify Belmont Bay.

3) Using a Pentium, it takes 8 seconds to draw all layers, 4 seconds to draw only the Roads layer, and 5 seconds to draw all but the Roads layer. Times will vary depending on computer processing speed.

Steps to follow:
a) Go to the List menu, Layer List option and click on the Show button above the Layer List to show all layers.
b) Click OK.
c) As the map redraws, time the redrawing process with all layers showing.
d) Go to the Layer List and click on the Hide button, to hide all layers. Click in the Show column for the Roads layer.
e) Click OK.
f) As the map redraws, time the redrawing process with only the Roads layer showing.
g) Go to the layer list and click the Show button to show all layers. Click in the hide column in the Roads layer.
h) Click OK.
I) As the map redraws, time the redrawing process with all layers except for the Roads layer showing.

Answers to Problem Set II

1) N/A

Steps to follow:

a) Go to the File menu, Preferences option. In the Preferences dialog box, click to select 1 in = N mi and set the units equal to miles.
b) Click OK.
c) From the List menu, select the Layer List option. Click in the Range column for the Roads layer.
d) Click on the Scale Ranges box, the Scale Ranges dialog box will appear.
e) Click and hold down the mouse button on the Show Layer bar. Drag the bar until 1 in = 0.5 mi. Do the same with the Show Names bar, until it is equal to 1 in = 0.2 mi.
f) Click OK in the Scale Ranges dialog box. Click OK in the Layer List dialog box.
g) Select the zoom-in tool, position it over the Focus Point and click. Repeat until 1 inch = 0.5 mi.
h) Continue to use the zoom-in tool to zoom to reach the point where 1 inch = 0.2 mi.

2) N/A

Steps to follow:

a) Go to the File Menu, Preferences option. In the Preferences dialog box, select 1 : N. Select Meters for your distance units.
b) Click OK.
c) From the List menu, select the Layer List option.
d) Click in the Range column for the Places layer.
e) Click on the scale ranges button.
f) Click on the Show Layer bar and adjust until the range equals 1 : 30000, repeat for Hide Layer bar, adjust until 1 : 1000000.
g) Click OK in the Scale Ranges and Layer List boxes.
h) Select the zoom-in tool from the tool bar and position it over the Focus Point of the view.
i) Click with the zoom-in tool until 1 : 30000.
j) Continue to zoom in until the scale is 1 : 1000000. Once you zoom in beyond this point, the Places should not be visible.

3) Lake Manassas is approximately 3.5 km from east to west. Lake Manassas covers 3.12 square km.

Steps to follow:

a) Go to the File menu, Preferences option, in the Preferences dialog box, change the units to kilometers.
b) From the List menu, go to the Layer List.
c) Click on the Hide button above the Layer List. Click in the Show column for the Water layer.

d) Click OK.
e) Click on the map with the Arrow tool until you locate and identify the object Lake Manassas in the midwestern portion of the map.
f) Click on the Distance tool to select it. Position the cursor at the eastern most point of the lake, click once to anchor the tool. Drag with the Distance cursor to the western most point of the lake. Look in the area below the map to read the distance across the lake, measure the east/west distance across the lake.
g) Double click on the lake with the Arrow tool to bring up the object settings box.
h) Click on the position/size button to determine the area the lake covers.

4) N/A

Steps to follow:
a) Go to the View menu option, Go to View. Highlight the Prince William County <entire map> and click on the Go to View button.
b) From the List menu, select the Search option.
c) In the Search dialog box, select Search for "Names that start with:" "Dale." Search in the individual Places layer.
d) Click on the Search button.
e) The Search Collection dialog box will appear, highlight Dale City by clicking on it with the cursor.
f) Click on the Show & Zoom To button.

5) N/A

Steps to follow:
a) Go to the List menu, Layer List option, click on the Hide button. Click in the Show column for the Roads (major) layer, and the Places layer. (Note: you will have the appropriate view of Dale City in your Map Window from the previous exercise.)
b) Go to the View menu, Save Current View, option. Enter the name "Dale City" when prompted.
c) Click OK.
d) Go to the View menu, Set Reference View option. Select the Dale City view by clicking on it to highlight it.
e) Zoom in on Dale City by clicking with the Zoom-in tool on the view of Dale City, remember to place the tool at the Focus Point and click.
f) Click on the Reference View, shown in the upper-right corner of the Map Window, with the arrow tool.
g) Go to the View Menu, click on the Show Reference View menu item to hide the reference view. Click once again on the Show Reference View menu item to recall the reference view of Dale City.

6) 135 roads, plus 1 alias begin with the letter "R" in Prince William County. Of those, 51 are courts.

Steps to follow:

a) Go to the List menu, Search option.

b) Enter the search criteria in the dialog box: "Search for objects:" "With names that start with...," type in "R." Select search Individual Layer and select the Roads layer. Search in the Current Map, and click on Replace Previous Collection.

c) Click on Search. When the Search Collection dialog box appears, note the number of objects in collection.

d) Modify search criteria in the Search dialog box to reflect: Contains "Ct.", Search layer Roads, Search Current Map, and Subset of Previous Collection.

e) Click on the Search button. When the Search Collection dialog box appears, note number of objects in collection.

7) Taking the Copeland Dr. route, it is approximately 2.88 km from Natasha's to Boris's. If you take Copeland Dr. south to Sudley Manor and head east on Sudley Manor, and then go south on Strasburg St., and go west on Copeland when you hit it again, it will only be approximately 1.49 km.

Steps to follow:

a) Go to the List menu, Search menu item.

b) In the Search dialog box, enter search for objects "with names that start with" and type in "Copeland". Search by individual layer and select the Roads layer. Search the Current Map, and Replace the Previous Collection.

c) When the Search Collection dialog box appears, highlight Copeland Drive and click on the Show and Zoom To button.

d) Select the Zoom-in tool from the left menu bar and position the tool over the map and click to zoom in to where you can read the street name for Copeland Drive.

e) Return to the Search menu item and then click on Search and go to the Search Collection dialog box. Click on the Addresses button. Select the appropriate range for Natasha's address (10432). Note the location of the house.

f) Repeat the above steps, but enter the appropriate range for Boris's address (9654). The Focus Point will remain on the location of Boris's home.

g) Select the Distance tool and position it over the Focus Point. Click and drag the cursor until it reaches Natasha's house. Read the distance in the lower-left portion of the Map Window.

h) Select the Zoom-in tool and position it over the Focus Point of the map. Click and zoom in to a point where you can read the street names. Look at street names and determine the shorter route.

8) N/A

Steps to follow:

a) Go to the List menu, Layer List option and click on the Padlock icon to the left of the Water layer.

b) Select the Search item from the List menu. In the dialog box, enter, "With names that start with: North Branch." Search in the Individual Water layer and search the Current Map and Replace the Previous Collection.
b) Click on the Search button.
c) In the Search Collection dialog box, highlight the North Branch Chopawamsic Creek and click on Show on Map and Zoom.
d) Go to the Object Settings option in the Objects menu. Enter the correct name in the Name section

9) N/A

Steps to follow:
a) Go to the File menu, Preferences option. In the Preferences dialog box, change the background color to Black, using the scroll down background color menu and highlighting your choice.
b) Click OK.
c) Go to the List menu, Layer List option. Click on the Padlock Icon in the Water layer to unlock the layer.
d) Click OK.
e) Use the Arrow tool to select Lake Manassas.
f) Go to the Objects menu and select the Objects Settings option.
g) In the Object Settings dialog box change the color of the object, Lake Manassas, to White. Also, change the Fill Pattern to a solid color.
h) Click OK.

Answers to Problem Set III

1) The flight between Health Care Plus and Central Hospital is approximately 12.8 km.

Steps to follow:

a) Select the Zoom-in tool, click on the Focus Point of the map to zoom in to the point where you can see and identify both hospital facilities, Health Care Plus and Central Hospital.

b) Select the Distance tool to measure the distance between the two hospital facilities. Do this by placing the crosshair on one facility, holding down the mouse button and dragging the distance tool to the other facility. Read the distance in the white bar along the lower left corner of the map.

2) The best route is to go south on Delashmutt from Health Care Plus to Mount Atlas, continue going south until you hit Waterfall Rd., go east on Waterfall Rd., take State Hwy 234 east to Pageland Ln. south. Continue going south on Pageland and take US Hwy 29/211 east until you get to Central Hospital. The drive will be approximately 18.47 km.

Steps to follow:

a) Your Map Window view should encompass both hospital facilities, Health Care Plus and Central Hospital.

b) Select and use the Zoom-in tool if you are unable to read the names of the roads. Determine the best route.

c) Use the distance tool to measure the distance along the best route.

Or you can use the Polyline tool to obtain position and size information.

a) Select the Polyline tool from the toolbar along the left edge of the map window. (You must have at least one layer unlocked to select this tool; if you need to unlock a layer, go to the Layer List option in the List menu and click on the layer next to the roads layer to unlock it.

b) Position the Polyline over the distance you need to cover, click to position a vertex and continue in this manner until you have covered the distance between the two facilities.

c) Read the position/size information for the polyline object from the status bar at the bottom of the map window.

3) N/A

Steps to follow:

a) Go to the List menu, Layer List option and unlock the Water layer by clicking the Padlock Icon in the far left column of the water row. Do the same for the Places layer (you will be putting the symbol in the Places layer).

b) Now that you have one layer unlocked, you will have access to more tools. These tools are located along the left edge of the map window. Select the Symbol tool.

c) Position the Symbol tool over the map, on Lake Manassas, at a good fishing spot and click with the mouse. An Object Settings dialog box appears.

d) Type in "Fishing Spot" for your Symbol Title, set the layer to Places, the map to the Prince William County map, and the symbol to the appropriate fishing symbol.
e) Repeat the same process to add the other fishing spot and the campsites.
f) Select the objects with the Arrow tool, you can select multiple objects by holding down the shift key as you click on objects with the mouse.
g) Go to the File menu select the Export option.
h) When the Export dialog box appears, make the following selections: export only the selected objects, in the simple data format, rather than as an MIE.

4) N/A

Steps to follow:
a) Go to the List menu, Layer List option and unlock the CAMEO facilities layer by clicking on the Padlock Icon in the Cameo facilities layer.
b) Go to the List menu, Search menu item. In the Search dialog box, enter in the "Search for names that start with..." "Mariner." Search the individual Roads layer, and Replace the Previous Collection.
c) Click on the Search Button.
d) Highlight Mariner Lane and click on the Show on Map and Zoom button.
e) From the tool bar along the left side of the map, select the Polygon tool and position the cursor over the desired location of the facility on the map.
f) Create a star symbol. Each time you click with the mouse, a point will be anchored on the map.
g) When you have completed the star, double click with the mouse. The Object Settings dialog box will appear and you will be prompted to enter the name, layer and other information. Type in "Star Research Center" for the name, click the set layer button and move the object to the CAMEO facilities layer.

5) N/A

Steps to follow:
a) Go to the List menu, Layer List item. Unlock the Temporary layer and the Roads layer by clicking on the Padlock Icon in the far left column in the row for each layer.
b) Go to the List menu, Search menu item. In the Search dialog box, search for "Names that start with...," and enter "Lake Omisol." Search on the individual Water layer, and Replace the Previous Collection.
c) Click on the Search button.
d) In the Search Collection dialog box that appears, highlight Lake Omisol and click on Show on Map and Zoom.
e) Click with the Arrow tool to locate Cismont Ct. and Omisol Rd. You may to zoom out from your current Map View, using the Zoom-out tool.
f) Select the Polyline tool from the tool bar to the left of the map. Position the Polyline tool over the map at the point on Cismont Ct. where you want to begin the bridge, click once. Drag the mouse over to the point where you want the bridge to intersect Omisol Rd.

g) Double Click, an Object Settings dialog box appears. For Name, enter Bridge. Click on the set layer button and move the object to the Roads layer.

h) When the bridge is located where you would like it, select the Arrow tool and click where the bridge intersects Cismont Ct.

i) Go to the Objects menu and select the Vertex sub-menu and the Insert Vertex at Focus Point option. Repeat these steps for the Omisol Rd intersection with the bridge.

j) Go to the List menu, Layer List option and click on the Padlock Icon for the Roads and Temporary layers to re-lock them.

k) Go to the List menu, Search option. Enter for "Names that start with...," "Omisol." Search the individual Roads layer and Replace the Previous Collection.

l) Click on the Search button.

m) Select Omisol Rd in the Search Collection dialog box and click on the intersections button to check for the intersection with the bridge. Repeat these steps for Cismont Ct.

[Note: Be sure to lock layers when you have completed edits.]

FAQs - Frequently Asked Questions

Why doesn't MARPLOT display the maps/layers I have? I get a blank window or a window that only shows some of my maps/layers.

Remember that what you see in the map window depends upon (a) the area you are looking at, (b) the current scale (remember that layers can be set to show only at certain scales), (c) the order of the layers (layers can draw over one another) and (d) the maps that are currently in use. If you are not seeing what you expect, consider each of these factors.

Here are some suggestions:

(a) Use the Go to View item in the View menu to choose the correct view. If none of the views in the view list are what you want, you can use the Map List button to go to the Map List dialog box, and then use Go to Map to see an entire map.

(b) Use the Layer List item in the List menu. Some of the layers you want may be in Hide mode, or they may be in Range mode and their scale settings might have them hidden at the current scale.

(c) Again in the Layer List, when the "alphabetical" box is not checked, you can see the layers in their top-to-bottom order. Higher layers can draw over lower layers. Use the Move Layer button to change the order.

(d) Use the Map List item in the List menu to see a list of the available maps. If the map you need is not listed, you should use the Find New Map button to locate it, or ask your system administrator to install the map for you. Maps may be unavailable because the disks they are on are not currently on-line. Finally, a map may be available but not in use, in which case you can simply put it in use using the Map List dialog box.

Why is MARPLOT taking too long to draw my map or to perform some other operation?

You can interrupt most MARPLOT operations by pressing the escape (ESC) key. If your layer scale ranges are not set appropriately, you may find that MARPLOT is taking too long to draw because it is drawing too much detail at zoomed-out scales. If you find that you are pressing ESC too often, you should change the layer scale ranges using the Layer List dialog box.

I'm searching for "E Maple St." in the Search dialog box, why can't MARPLOT find it?

Don't use directional prefixes in the Search dialog box. In this case, you should just type "maple" and click Search.

I want to make a change to an object, why won't MARPLOT let me?

To make a change to any object, that object's layer must be unlocked using the Layer List dialog box. Also, if your MARPLOT system is multi-user and your system administrator has set you up with browse-level permission, you will only be able to make changes to objects on your personal user's map.

A while ago I saved a view of a certain area of my map. When I return to the view, it shows the right "area," but the "contents" look different than when I saved it. Why?

When you save a view, MARPLOT remembers the area you were looking at and what it looked like when it was saved. However, if you save a view with certain layers shown and return to the view at a time when different layers are shown, the view may look different. Similarly, it's possible that an object that used to be in the view has since been deleted, or that new objects have been added. If you are bothered by the discrepancy between the small saved image of the view and its current state, you can always delete the old view and save it again with its new look.

When I save a view, why does the small image that MARPLOT uses to represent the view look like a black rectangle, and not like what I saved?

When MARPLOT "shrinks" the image of your saved view, patterns in the image become more dense than they are in the map window. If you save a view that contains a dotted background pattern, those dots become magnified in the shrunken image, and can in fact totally obliterate it. Thus, when saving a view you should consider first hiding layers (such as the "Places" layer) that contain objects that create background patterns in the map window.

Someone used the Administrator menu item and now MARPLOT asks me to login with a password every time I run it. Can I go back to a single-user system without passwords?

There are two ways to return to single-user mode. First, if you know the administrator's password (see section 2.4.5 of the MARPLOT USER'S MANUAL), you can use that to enter MARPLOT. Then choose the Administrator menu item and click the Stop Administration button in the MARPLOT Administrator dialog box. Another method is to quit MARPLOT, find the USERS directory (folder) within the MARPLOT directory (folder), and rename it USERSX. Subsequent uses of MARPLOT will not require passwords.

I have a "circle" object on my map that looks like an egg. Why can I only select the object by clicking at its very top or very bottom?

Previous versions of MARPLOT allowed for arbitrary ellipse objects. This new version only allows circles. However, it is possible to end up with an elliptical "circle." This can

happen if you import an ellipse object that has been exported by a previous version of MARPLOT, if you draw a circle object at a very small (zoomed-out) scale, or if you create a circle object and later change its latitude by a large amount.

If desired, you can "fix" a distorted circle by clicking and dragging on one of its four selection tag handles (the circle's layer must be unlocked). As soon as you begin to drag, the object will become a true circle.

One (or more) of my map files seems to be messed up. How come I can see certain objects on the screen but can't click on them, I don't see objects that I know are supposed to be there, or I get error messages when MARPLOT is drawing the maps?

Under certain unusual circumstances (perhaps due to a "crash" of your computer), it is possible for MARPLOT's map files to become corrupted to various degrees. The best way to avoid problems with corrupted files is to keep regular backups of your map files. It is sometimes possible to fix corrupted files by using the Compact Maps item in the File menu. In the process of compacting the maps, this function reorganizes the map data, and this reorganization can correct certain errors. However, corrupted map files are not common, so you should consider other possible reasons for your problem before trying Compact Maps.

How do I download LandView software and county data on the Internet?

To download LandView software and data for any county from RTKNet (on the Internet), go to:

http://rtk.net/landview

Once you have reached the RTKNet website, you will see a screen that looks like the one on the following page.

LANDVIEW Mapping Program

Step 1

Specify the county and state that you want LANDVIEW data for or view help. (Landview will not run without at least one county's data.)

```
County:
State :  (required)
```

Once you have entered the appropriate information, you will see the following screen:

LANDVIEW Mapping Program

Step 2

This is the final step in obtaining landview. You now need to download the following files. Put them in a sub-directory on your machine, and then run the lvinstal.bat program. Landview is a DOS program, and does not run on the web. Read the read.me file for more information, or you can view help.

The LANDVIEW II program
The Dbase files
The maps (MARPLOT files) for your county
The installation script for your county
The READ.ME file for LANDVIEW II

There is a listserv for people who are using the LandView program. It is a good forum for discussing LandView with others who are using it, To subscribe, send e-mail to listproc@rtk.net with the following message body:

subscribe landview

Once you have downloaded the files, you can return to the RTK Net Database Page.